Remarks

Claims 1-6 are pending in this application. Claim 1 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Niki (U.S. Patent No. 4,620,147). Claims 2-6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Niki. Applicant believes that the invention is patentable.

Claim 1 recites a narrow bandwidth, super-regenerative receiver. The receiver comprises a signal detector, a quench circuit and a frequency sweeping circuit. The signal detector has a regenerative oscillator for detecting a signal transmitted at a particular transmit frequency. The quench circuit is connected to the regenerative oscillator for interrupting the oscillation of the oscillator at a predetermined frequency.

The frequency sweeping circuit is connected to the regenerative oscillator and the quench circuit. The quench circuit is arranged to cycle the regenerative oscillator and the frequency sweeping circuit on and off together. The frequency sweeping circuit controls operation of the regenerative oscillator to a desired narrow bandwidth around the transmit frequency.

Put another way, claim 1 recites a super-regenerative receiver composed of a signal detector having a regenerative oscillator and a quench circuit connected to the regenerative oscillator, wherein a frequency sweeping circuit is connected to the regenerative oscillator and the quench circuit to control operation of the regenerative oscillator to a desired narrow bandwidth around the transmit frequency.

That is, the addition of the frequency sweeping circuit to the regenerative oscillator and quench circuit is advantageous in that it results in the regenerative oscillator functioning as a center frequency moveable (sweeping) bandpass filter with a narrow band. As explained in the background art on page 1 of applicant's specification, prior super-regenerative receivers suffer from the need to use tuned input circuits to allow the use with

narrow band signals. Applicant's invention addresses this problem by providing an improved super-regenerative receiver including a frequency sweeping circuit among other elements as recited by claim 1.

Niki describes a signal detector of a far different type in that the Niki signal detector utilizes a mixer and then an envelope detector at intermediate frequency (IF). Such IF techniques are far different than regenerative techniques in that these IF techniques do not utilize a regenerative oscillator and associated quench circuit. In contrast, IF techniques use a local oscillator to down mix an input signal to IF and then detect the envelope thereof. Turning to Niki, Niki describes a signal detector wherein the envelope of an IF signal corresponding to the desired frequency component is set to be above a desired level in a single sweep of a local oscillator by comparing the envelope with a predetermined value for controlling the attenuation of the input signal. After the attenuation is set, only the desired frequency component has an envelope larger than the predetermined value so that the desired frequency component is easily identified in the next sweep.

In contrast, claim 1 recites a super-regenerative receiver including, among other limitations, a regenerative oscillator connected to a quench circuit in combination with a frequency sweeping circuit. Niki is a different type of signal detector and fails to describe several of the claimed elements and relationships among these elements.

More specifically, Niki fails to anticipate the invention recited by claim 1. Niki fails to describe a signal detector having a regenerative oscillator as recited by claim 1. The Examiner directs applicant's attention to local oscillator 105. Local oscillator 105 is not a regenerative oscillator as recited by claim 1 but is only a local oscillator controlled by sweep generator 106 for use in an IF envelope detection arrangement.

Further, Niki does not describe a quench circuit connected to a regenerative oscillator as recited by claim 1. Niki only describes gates 136 and 137 and gate signal

generator 138 which are not for interrupting or quenching the oscillation of a regenerative oscillator at a predetermined frequency.

In the final action, the Examiner states that "local oscillators regenerate samples after every cycle" and "in Figure 7 of Niki, 137 is directly connected to 105 and 136 and 138 are indirectly connected to 105." However, the claimed super-regenerative receiver recites a signal detector having a regenerative oscillator with a quench circuit connected to the regenerative oscillator for interrupting the oscillation of the oscillator at a predetermined frequency. Niki fails to suggest these particular items with the specifically recited relationship. That is, Niki does not describe the regenerative receiver action comprehended by claim 1 but instead utilizes downmixing and envelope detection at IF. There is no quench circuit interrupting oscillations of a regenerative oscillator, let alone any teaching of the combination recited by claim 1 that further includes the sweeping circuit.

The Examiner directs applicant's attention to sweep generator 106 connected to local oscillator 105, however, local oscillator 105 is not a regenerative oscillator and is not controlled to oscillate in a narrow bandwidth around the transmit frequency. Put another way, the fact that Niki shows sweep generator 106 connected to local oscillator 105 fails to suggest the specifically claimed elements and relationship among these elements in claim 1.

In summary, the Examiner has pointed to several different parts of Niki and has attempted to read applicant's claim 1 onto those individual parts. However, claim 1 recites specific elements and relationships among these elements that achieve a super-regenerative receiver that is not suggested by Niki, as Niki only suggest downmixing and envelope detection at IF which is far different than the regenerative detection techniques including a sweep circuit of applicant's invention.

Claims 2-6 are dependent claims and they are also believed to be patentable for their dependency upon claim 1.

Respectfully submitted,

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